TECHNOLOGY FOR

Alaskan Transportation

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Local Technical Assistance Program

Alaska takes first step to Superpave

At a training seminar held in Anchorage, the Alaska Department of Transportation and Public Facilities took its first steps toward implementing the new Strategic Highway Research Program (SHRP) mix design procedure called Superpave. Dr. Rita Leahy of Oregon State University provided the training as part of a department research project to implement Superpave.

The new method uses a gyratory compactor that kneads the asphalt concrete sample. This simulates field compaction better than the impact hammer used in the current Marshall Mix Design. Superpave predicts the initial field compaction, compaction after traffic loading, and the compaction at the end of the design life. The method also includes recommended aggregate gradations that provide better rock to rock contact. By predicting field performance

See **Superpave** *on page 4*

Survey Party ice sculptures welcomed visitors to the Fairbanks DOT&PF offices on Peger road this spring. The sculptures were done by former DOT&PF employee Steve Lester as his final assignment on the job.

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Terms and training help plan for quality
New ways to deal with road dust and studded tires
Ways to make your computer run smoother

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Your complete guide to newletter articles

This newsletter is funded by a grant from the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities.

RAP use shows promise

RAP (Recycled Asphalt Product) may be an attractive alternative in solving road surfacing problems. RAP is a by-product of major asphalt highway reconstruction projects. During these types of major road upgrades, RAP availability may geographically coincide with a secondary road project. Roads requiring some kind of surfacing in order to alleviate problems created by traffic speed, washboarding, dust control, surface wear, etc. ar[e] ideal candidates fo[r] application of RAP.

A common sense approach to recycling existing asphalt and the subsequent processing of the material into RAP is environmentally acceptable and possesses an excellent track record. In the past, disposal methods included asphalt waste to be removed from the project site and deposited or disposed of in a dump or landfill; thus, in some cases consuming precious space that could have been used [for] other solid waste.

[A]s a result of the Matanuska-Susitna Borough Public Works Department's experience, the advantages of a RAP surface over the gravel overlay are as follows:

1) The RAP surfaced road does not have to be graded or shaped as often as a gravel overlay surface requires;

2) Dust Control - there is a significant reduction of particulate dust on and a proportionate increase in local air quality.

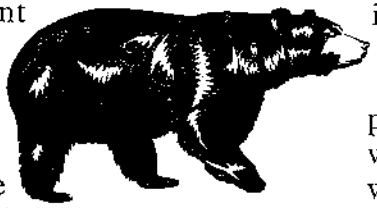
3) Cost effectiveness

See **RAP** *on page 3*

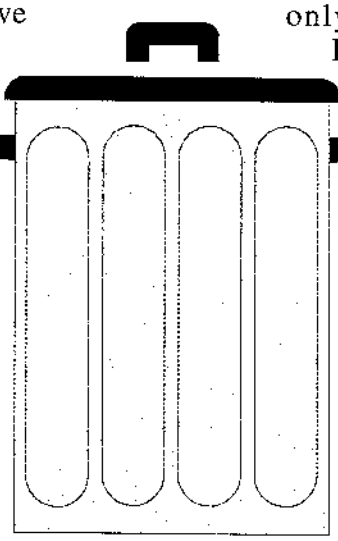
Underground container effective at remote sites

For all those who must regularly service remote garbage receptacles, there's now an idea worth looking into. An Ontario Ministry of Transportation roadside park located outside Kakabeka, 20 km west of Thunder Bay, has been the test site for a different kind of can.

This new can is deeper than a regular garbage can, and can hold up to 1300 liters (343 gallons) of garbage. That's the equivalent of 10 or 11 regular sized garbage cans. Part of the can is buried underground, so the coolness of the earth keeps garbage at a low temperature, thus reducing the rate of decay.



The cans are made of reinforced fiberglass, and have a weatherproof lid. According to Richard Bruneau, Regional Operations Engineer, Thunder Bay, the cans are bear proof, which makes them useful in remote areas.



He says that they may have a potential for urban waste disposal as well, where odor and cleanliness are a greater concern.

There are five containers in the park. Because they are so large, and offensive smells are reduced, they rarely have to be emptied—only twice per season, says Bruneau, as opposed to a few times a week. This leads to a substantial saving in maintenance costs.

The container, which has had wide success in Finland and Sweden, is manufactured by Alfa Products International, a company located in Thunder Bay.

For more information, contact Richard Brineau, Regional Operations Engineer, Thunder Bay at (807) 473-2118.

Reprinted with permission from "Road Talk" *Ontario's Transportation Technology Transfer Digest, June 1995.*

News & Views

Anchorage celebrates Engineers' Week

Engineers use science and technology so that products, services and systems can better serve the needs of our society. With the theme, "Turning Ideas into Reality," as their focus, more than 35,000 engineers across the country participated in Engineers' Week 1996.

National Engineers' Week was founded in 1951 by the National Society of Professional Engineers to increase the public awareness of engineers' contributions to our quality of life.

It is always celebrated at the time of George Washington's birthday. Washington was a military engineer and a land surveyor whose technical skill earned him the title of first U.S. engineer.

In Anchorage, engineering professionals and organizations gathered Feb. 18-24 for a week of awards and education.

As part of the Discover "E" program, engineering professionals visited local schools and spoke to math and science classes about engineering and its applications. Displays at the Dimond Center highlighting different engineering firms and organizations, as well as the candidates for engineer of the year. Other activities included social events as well as competitions for students.

The Alaska T2 Center offered information on its training and education programs at its Engineers Week display at the Dimond Center in Anchorage

The week concluded with the awards banquet on Feb. 24 at the Anchorage Museum of History and Art. There, engineer of the year Dennis Berry was honored, and the 1995 scholarship recipients Tristan Kenny, Lisa Tibor, Justin Henwood, Laura Bundy and Christopher Svec were presented with certificates of award.

A major part of the Engineers' Week event is the involvement of the supporting engineering groups with the students in their communities. Their goal is to provide hands on experience that helps students relate the practical applications of math, science and engineering to the world around them. The Engineers' Week activities also serve to promote a level of technological literacy among students.

T2 welcomes additional articles on Engineers' Week.

Adapted with permisssion from "Alaska Business Monthly," *February 1996*

Continued from page 1

- a RAP surface road initially is approximately 10% above the initial cost of standard gravel overlay project;

4) Wearability- In the right applications, a RAP surfaced road will hold up better over a long period of time.;

6) RAP surfaces can be striped.

The recommended road for RAP surfacing is a light duty, residential or subdivision road. It is not recommended for high speed roads or roads with heavy truck traffic. It has demonstrated amazing effectiveness on hills and grades, and when properly installed with adequate drainage, it virtually eliminates washboarding.

In order to successfully apply the RAP onto an existing gravel road, a number of preliminary steps are crucial. The existing gravel surface must be properly prepared. A good stabilized subbase must be shaped and compacted. Equipment operators must be reminded that a 3% crown must be maintained in order to provide adequate drainage. Next, 4 to 6 inches of RAP applied evenly with optimum moisture and maximum compaction is a necessity. The compaction serves as a seal prior to the emulsion application. It is imperative that the emulsion is applied while the surface is adequately and evenly moist. A computerized tack truck is recommended with a 60/40 oil-water mixture at .10 per square yard. It has been our experience that a polymer additive increases adhesion and is worth the additional minimal cost. When applying the RAP material to the road surface, quality control is vital and any irregularities in thickness will cause future problems. Thin areas will begin to unravel almost immediately as well as scalped areas. Therefore, a 4 inch minimum application depth is the standard.

As with any road surfacing product, there are some disadvantages. In areas where speed is not regulated and/or enforced, transportation officials should expect an increase in vehicular speed due to an improved driving surface. Once RAP is applied to a secondary road, it requires an annual reapplication of emulsion product. Some roads may experience minor potholing and/or unraveling. With RAP this maintenance is easy to resolve. The road can be scarified and graded, regraded and compacted and then shot with oil to establish a new, smooth, uniform driving surface.

In our road experiments, RAP proved to be pliable and flexible and there were virtually no cracks to seal as compared to asphalt concrete roads. The ability to rework a RAP road is significant. In order to patch occasional potholes that may occur, UPM was used. The UPM did not negatively affect or hinder the reconditioning process of ripping the surface, compacting and reshooting with emulsion. This reshooting process prolongs road life. The recommended mixture is 50 to 50 emulsion-water mix at a .05 per square yard rate. Compared to annual gravel overlay road maintenance, it has proven to be highly economical.

RAP roads offer the same characteristics as a paved road. However, a RAP road does not have the same density or hardness. It is recommended that ice and slush be removed early, in order to quickly dry out the road surface. A RAP road provides higher performance than a gravel surfaced road at break-up due to the fact that the RAP surface can be worked sooner and will dry out quicker.

The Matanuska-Susitna Borough Public Works Department discovered that the application of RAP should be limited to lower speed residential or subdivision road applications. It is cost effective to apply RAP to a light duty road. However, it is necessary to conduct annual maintenance sealing. The impact of a RAP road to an area that was once surfaced by a gravel road is positive. Drivers are pleased with the improved driving surface, reduction in dust and lower maintenance costs. Our experience has been positive and we will continue to evaluate new projects for RAP applications.

-Provided by Jim Swing

Deep thoughts picked up on the Net...

- Why ask why?
- Why do you need a driver's license to buy liquor when you can't drink and drive?
- Why isn't phonetic spelled the was it sounds?
- Why are there interstate highways in Hawaii?
- Why are there flotation devices under plane seats instead of parachutes?
- How does the guy who drives the snowplow get to work in the morning?
- If 7-11 is open 24 hours a day, 365 days a year, why are there locks on the doors?
- If nothing ever sticks to Teflon, how do they make Teflon stick to the pan?
- If you tied buttered toast to the back of a cat, and dropped the cat off a height, which way would it land?
- Why do they put braille dots on the key pad of the drive-up ATM?
- Why do we drive on parkways and park on driveways?
- You know that little indestructible black box that is used on planes... why can't they make the whole plane out of the same substance?
- Why is it that when you're driving and looking for an address, you turn down the volume on the radio?
- Why is it when you ship something by trick it is called a shipment, but when you send it by ship, it's called cargo?

Reprinted with permission from "Interchange," *Fall 1995.*

Superpave

Continued from page 1

Superpave seeks to reduce rutting due to pavement displacement.

The department currently has a research project entitled "SHRP Evaluation of Asphalt Mixes" which will evaluate Superpave designs on four projects completed in 1995 using the Marshall Mix Design Method. A project was selected from each region for evaluation by that region. An additional project was selected from the Central Region as a comparison. Dr. Leahy will run comparison samples at Oregon State University and will also visit each regional lab in April to provide hands on training for the lab technicians.

The research project also includes an introduction to Level 2 and 3 Mix Designs using rut testing machines, shear testers and environmental chambers. This work will be done and the University of Southern California at Berkeley. The Alaska DOT&PF does not plan to purchase this equipment.

The Superpave binder specifications address the temperature response characteristics of the oil. Displacement rutting is evaluated as well as the low temperature thermal cracking properties. The department is investigating the thermal cracking performance of Alaskan asphalt pavements in a separate research study .

The department plans future training with additional Superpave asphalt binder equipment when it is received.

- By Eric Johnson

Just a Reminder

The Alaska Transportation Technology Transfer offices will be closed April 15-19 while the staff hosts Alaska Transportation Week in Anchorage.

Stop by and see us at the Anchorage Sheraton Hotel for informative seminars, vendor booths and much more!

Did You Know?

A single car traveling on an untreated gravel road once a day for one year throws off one ton of gravel per mile

-Virginia Newsletter, Spring 1995

ALASKA TRANSPORTATION TECHNOLOGY TRANSFER

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New dust control material proves itself

Spring is finally upon us and soon road crews will be working out in the summer heat, some of them battling clouds of dust on unpaved roads.

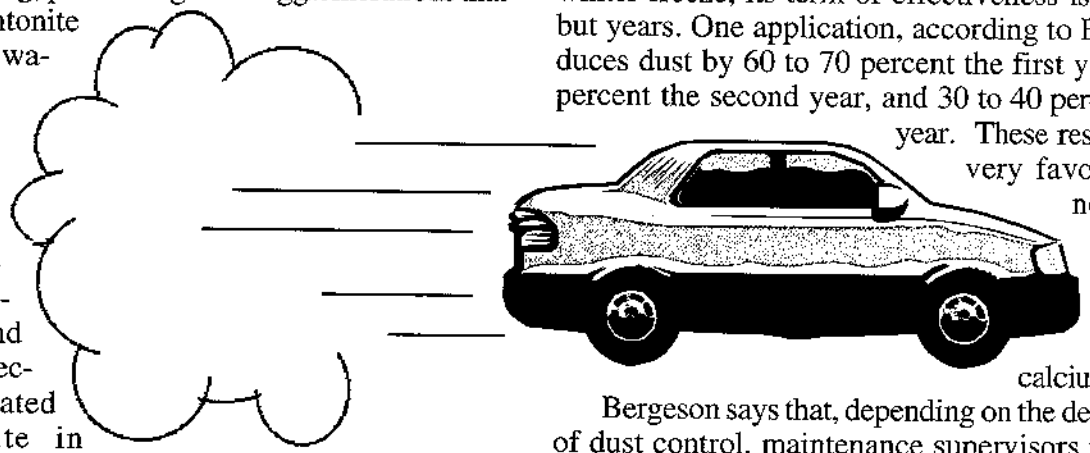
Dust control is the number one summer maintenance problem on unpaved roads, according to a survey of county and highway engineers published in *Better Roads*, April 1992. To address this problem, researchers and highway maintenance practitioners are working to find innovative and affordable ways to control dust.

One promising product being tested is bentonite, a naturally occurring sodium montmorillonite clay. Ken Bergeson, associate professor of civil engineering at Iowa State University, recently completed a two-year study, "Bentonite Treatment for Economical Dust Reduction on Limestone Surfaced Secondary Roads."

Test results indicate that for long-term treatment (two to three years), bentonite is an effective and less expensive alternative to chemical treatments on limestone roads.

In cooperation with Tama, Appanoose, and Hancock counties and the Iowa Department of Transportation secondary road staff, Bergeson selected one-mile sections of limestone-surfaced road for testing. Test sections were prepared by blading and windrowing loose surface material to one side. Bentonite was then spread along the widrow and bladed several times to blend it into the surface material. At the same time, a 0.4 percent soda ash solution was sprayed on the surface as a dispersing agent, and the surface was wet-mixed by motor-graders to a consistency of two- to three-inch slump concrete. Two graders worked in tandem to provide rapid mixing, preventing the agglomerations that form when bentonite is mixed with water.

Each test section was divided into five subsections. The first section was a control section, and the other four sections were treated with bentonite in amounts ranging from three to 12 percent (by weight of aggregate).



Bergeson says the results of the study indicate that bentonite has several benefits over the most commonly used dust control products, calcium chloride and lignin sulfonate.

One drawback with both calcium chloride and lignin sulfonate is that they are effective only while they remain directly on the road surface. When potholes and/or washboarding problems develop after either of these products is applied, blading the surface to correct these problems minimizes the effectiveness of the dust control materials.

Unlike calcium chloride and lignin sulfonate, bentonite is blended with road surface material when it is applied and adheres to pieces of surface material like an "electro-chemical glue." Bentonite's effectiveness is not reduced by grading or other maintenance activities, such as applying another layer of limestone, says Bergeson.

A second benefit of bentonite is its environmental friendliness, Bergeson says. Bentonite is a naturally occurring mineral containing no salt and poses no danger to the environment. And it does not contribute to vehicle rusting, as calcium chloride does.

In addition, bentonite is more cost effective than other dust control material. Researchers estimate the cost of bentonite treatment at half the cost of calcium chloride treatment. Not only are initial application costs lower, but bentonite has a much longer effectiveness period, reducing costs even more.

Because bentonite's bonding properties survive alternating wet and dry periods and can also survive long winter freeze, its term of effectiveness is not months, but years. One application, according to Bergeson, reduces dust by 60 to 70 percent the first year, 50 to 60 percent the second year, and 30 to 40 percent the third year. These results compare very favorably to the normal three-month total period of effectiveness for calcium chloride.

Bergeson says that, depending on the desired amount of dust control, maintenance supervisors may want to apply bentonite to limestone roads every two to three years.

His research also addresses possible problems associated with using bentonite as a dust control measure. Researchers had been concerned that moisture might make bentonite-treated roads slippery, but braking distances and braking handling on bentonite treated sections of road were comparable to braking results on dry control sections.

One disadvantage of bentonite is its inability to bind with the gravel used on some secondary roads. Gravel made of igneous rock has a negative electric surface charge (the same as bentonite) so bentonite won't adhere to it.

Limestone, however, has a positive charge, which allows bentonite to form a bond and adhere to it. For this reason, bentonite works best on crushed limestone.

Although he believes bentonite is an excellent dust control material, Bergeson says maintenance supervisors will still prefer other materials for gravel roads and short-term treatments where maximum dust control is desired. For example, calcium chloride may still be preferred spot treatment in front of houses.

Reprinted with permission from the Iowa Transportation Center's "Technology News," *Iowa State University, February 1995.*

Alaska looks for ways to save its roads

Studded tires are costing Alaska $5 million per year.

The majority of damage to high-volume roads in Alaska is caused by studded tires on passenger vehicles. The 3 to 6 percent of passenger vehicles that continue to use studs during summer are directly responsible for $1 million per year in pavement repairs.

Many Alaskan drivers use studded tires as an aid to winter driving because studs provide improved traction and safety when pavement surfaces are icy or slippery. While a variety of studies have demonstrated that traction on ice or snow can be improved with studs, an analysis of Alaskan winter driving conditions shows that primary roads are covered by snow or ice only 5 percent of the time. During the rest of the winter, pavements are bare or dry.

A solution to the studded tire problem may lie with the Scandinavians.

A multi-year program of intensive study on stud-related pavement wear in Scandinavia has yielded a set of preventive measures with proven success. These measures include mandated use of lightweight studs, and, where practical, surfacing heavily-trafficked roads with Stone Mastic Asphalts (SMAs) incorporating high-grade aggregates.

For many years, Finland and Sweden have conducted friction testing of studded and unstudded tires. These studies show there is no appreciable difference in the traction effectiveness of conventional studs versus lightweight studs. Lightweight studs and conventional studs offer virtually identical handling characteristics and stopping distances. Traction for unstudded tires is increased significantly when pavement ice has been roughened by studs.

All tire studs consist of two main components: a tungsten carbide steel pin, and an outer sleeve. Differences in weight are determined by the material used in the outer sleeve. The current lightweight stud designs that offer the best performance have sleeves made of either aluminum oxide or plastic. There is no difference in retail cost between conventional and lightweight studs, and both offer a service life of three to four winters.

The use of lightweight studs can reduce pavement wear by 50 percent, compared with conventional studs.

Pavement wear can be reduced an additional 30 percent with wear-resistant SMA using high-quality aggregates. It has been proven that, given a "good" aggregate, a pavement will resist stud-abrasion better if it contains ± 70 percent coarse aggregate.

The DOT&PF has taken measures to reduce stud-related road wear.

Some tests with SMA have been conducted in Alaska. Roads that have received SMA surfacing including portions of the Seward and Glenn highways, and DeBarr and Muldoon roads in Anchorage. The overall result has been a 45 percent reduction in pavement wear, compared to conventional pavement mixes.

In autumn of 1994 a statewide DOT&PF publicity campaign was launched to create awareness, and stimulate use, of lightweight studs. The program resulted in significant public demand for the lighter studs; available stocks were rapidly depleted. The following spring, the public education campaign encouraged drivers to remove their studded tires as soon as road conditions allowed.

With the use of more public education programs and research into the use of SMA, the DOT&PF hopes to further reduce the wear on pavements caused by studded tire use in in Alaska. Less wear will mean fewer repairs which may mean less cost to the state and its citizens.

-From material provided by Tony Barter

For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

Simple measures can avert disaster

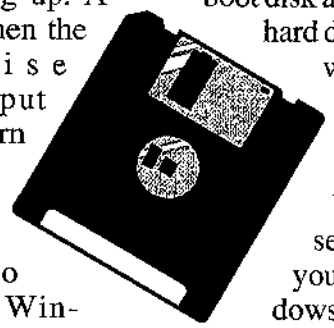
Although typewriters and adding machines were common in offices not that long ago, they seem like dinosaurs today because we've grown to depend so much on computers. Computers are one of the great labor-saving devices of all time, speeding up everything from number crunching to word processing.

But, there is a down side computers. If you had a mechanical problem with a typewriter, it usually involved nothing more than a broken ribbon, and you could replace it in a jiffy and get back to work without missing a beat. If your computer crashes you won't have such an easy time of it. In fact, you could lose valuable files that will take time and effort to replace.

It is a good idea to keep up with the basic maintenance functions on your office PC, so you can minimize the pain of a computer problem if and when it happens. Here are a few suggestions:

Create a bootable floppy disk

There are few more scary moments in an office than turning on your computer and not seeing that familiar sequence of screens that means the system is booting up. A boot disk allows you to start your PC when the hard disk is damaged or otherwise won't work. You simply put the disk in a drive and turn the computer on.



The way to make a boot disk simple. Insert a blank floppy disk into your drive. If you are using Windows 95, click on the "my computer" icon, then click once on the drive where the disk is, then click on Format in the File menu and select the Full Format option.

If you are using an older version of Windows, open File Manager, select the Format Disk command from the Disk menu and choose the Make System Disk option.

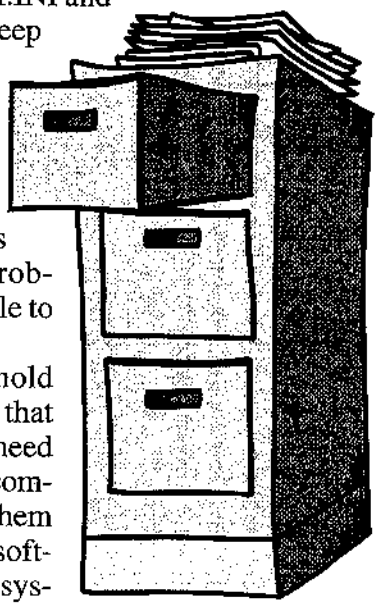
While you are in My Computer or File Manager, copy the CONFIG.SYS and AUTOEXEC.BAT files from your root directory onto your boot disk. Also copy any drivers that those files load onto your boot disk. (To find out which drivers, open AUTOEXEC.BAT and CONFIG.SYS in Windows Notepad and take a look at them.) That way, everything will work when the system boots-including your CD-ROM and tape drives. It's a good idea to make several boot disks and put them in different locations, just so you can find one when you need it.

If your computer has a diagnostic and repair program like Norton Utilities or Symantec's PC-Tools, you may be able to fix the problem after you boot up.

Another set of disks to keep handy are your software's original installation disks. You never know when you may end up needing to completely reinstall all of your software.

Keep inventories of important files

If you have to call in a repair technician, you'll make things a lot easier for that person if you have copies of your important files. Print out your AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI and WIN.INI files and keep them in a file on your desk. Microsoft's MSD diagnostic tool, which comes with Windows, also records your hardware settings and covers most basic hardware problems. It is another good file to print out.



These crucial files hold most of the information that technical support people need to help you recover from computer disasters. Update them every time you add new software or hardware to your system.

Back up your work

The best way to avoid major problems when your computer crashes is to back up your work on a regular basis.

Backing up on floppies is just not practical with the amount of information stored on today's hug hard drives. Tape drives, which can transfer mountains of data onto one tape, are becoming essential. If you don't have one already, talk your company into buying one for you.

You should back up your day's work onto floppy disks and use the tape drive for a full backup of your data weekly. Once a month, back up your entire hard drive. You should also back up before you remove the computer's cover to install any new hardware or even to clean it.

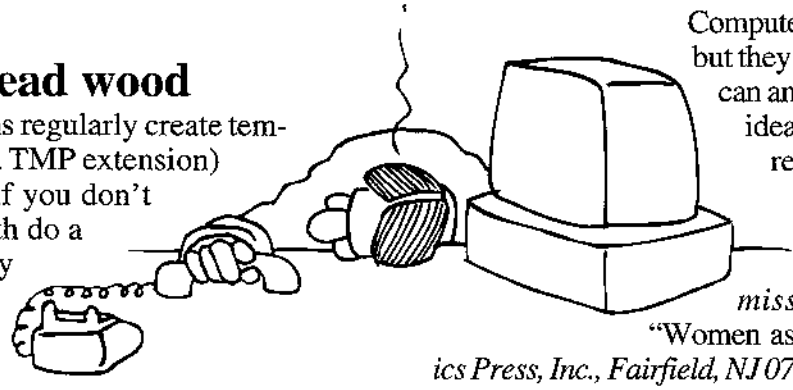
Don't use the same tape for every backup. You never know when a tape could get damaged and not accept all of the data you store on it. It is a good idea to use multiple backup tapes and rotate them monthly. Replace all of your backup tapes every six months.

Get rid of the dead wood

Windows applications regularly create temporary files (those with a TMP extension) that take up disk space if you don't delete them. Every month do a search for all temporary files (use the Search command in File Manager with the *.TMP parameter), and delete them. Make sure you close all open programs first so that you don't cause Windows to crash.

Use the Defrag command

MS-DOS has a handy command called Defrag, which speeds up disk access and frees up some extra disk space. Use it on a regular basis, but budget some time for it because it can take a while if your hard drive is large. It doesn't hurt to do a monthly or bimonthly virus scan either, especially if you download files from on-line services or electronic bulletin boards.



Computers are wonderful machines, but they are not risk free. Accidents can and do happen, and its a good idea to be prepared so you can recover from them quickly and minimize your mental pain and suffering.

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Computer CD puts Technology Transfer at your fingertips

Where can you find hundreds of articles on public works topics right in your own office, just a few keystrokes away? Answer: In the new CD ROM LTAP. LTAP stands for Local Technical Assistance Program. There are 55 LTAP's nationwide that provide information to public works professionals. The 1993 version of the CD, just released, contains newsletters published in that year by all the LTAPs around the country. The purpose of this CD is to make the information written in these newsletters more easily accessible.

Getting Started

To use the CD, you will need at least 11 MB and a CD drive on your computer. Easy installation instructions are printed on the back of the case. Once you are in the program you can search for an article by publication name or topic. You can select the article you desire and either print it or view it on the screen.

Searching for a publication

To search for a publication, click on "Search" then "Publication Search." After choosing your desired program (LTAP, Tribal or All) and program location (all locations or a specific state, all the publications that fit your criteria will appear. For example, if "All" and "Kansas" were selected, four publications would appear- the KUTC Newsletter, PC-Trans Magazine, the Kansas Trans Reporter and CTD Update. From here you can click on a specific publication and the titles of all the articles that are in the newsletter will appear.

Searching by topic

If you choose to do a topic search, click on "Search" then "Topic Search." Set program type and location as desired and enter your topic.

There are a couple of different ways to enter your topic, which will help narrow down the number of articles shown to those that you really need. If you enter just one keyword for the topic, you can get a pretty lengthy list. For example, if you are interested on an article on winter roads and the keyword "winter" is entered, 204 articles will appear. However, you can get a shorter list by searching for two key words in an article using the word "and." If you enter "winter and roads," 118 articles will appear.

You can also check for key words appearing in the same paragraph. If "winter W/P roads" is entered, 40 articles will appear. There are a few other search options to help you get only the articles you need.

The LTAP Newsletter CD is equipped with help menus, "LTAP News on CD Help" and Windows Help. Both of these menus are a breeze to use.

The best news is this CD is free. If you would like to receive the 1993 version, contact the Alaskan Transportation Technology Transfer program at (907) 451-5320 or fax at (907) 451-2313.

Article by Chad Dennis - Reprinted with permission from the "KUTC Newsletter," *Summer 1995*

For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

DATE	EVENT	SPONSOR/CONTACT	LOCATION
Apr. 15-19	Alaska Transportation Week	DOT&PF/AGC/T2/UAF-TRC/FHWA, (907) 451-5323	Sheraton Anchorage Hotel Anchorage, Alaska
Apr. 15-18	FHWA AASHTO National Metric Conference	Bruce Rosand @ (612) 582-1090	Minneapolis, Minnesota
Apr. 16-18 (Anch) 23-25 (Fai)	Worksite Traffic Control Supervisors Training	ATSSA @ 1-800-272-8772	West Coast International Inn Fairbanks Princess Hotel
Apr.28-May 1	APWA-Wild About One-Call	APWA @ (816) 472-6100	Egan Center Anchorage Hilton
May 26-31	International Offshore and Polar Engineering Conference	ISOPE @ (303) 273-3673	Los Angeles, California
June 3-7	Pneumatic Equipment Control & Maintenance	Alaska Vocational Technical Center 1-800-478-5389	Seward, Alaska
June 10-14	Boiler 3rd Class & Fireman Exam Preparation Class	Alaska Vocational Technical Center 1-800-478-5389	Seward, Alaska
June 15-19	IRWA 1996 Education Seminar	Carole Herrin SR/WA @ (619) 573-1435	San Diego, California
June 17-21	Refrigeration Technician Certification Preparation Course	Alaska Vocational Technical Center, 1-800-478-5389	Seward, Alaska

Meetings Around Alaska

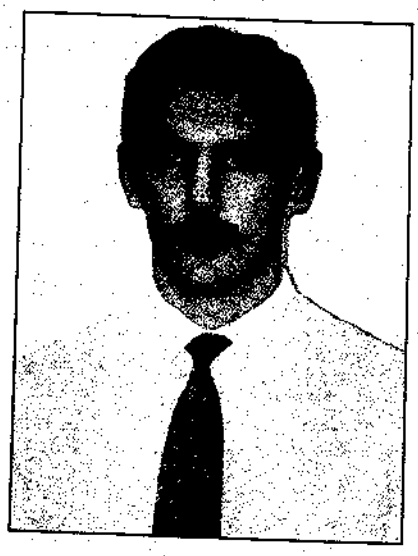
Society	Chapter	Meetings Days	Location
ASCE	Anchorage Fairbanks Juneau	Monthly, 3rd Tues., noon Monthly, 3rd Wed., noon Monthly, 1st Wed., noon*	Northern Lights Inn Captain Bartlett Inn Breakwater Inn * except June-August
ASPE	Anchorage Fairbanks	Monthly, 2nd Thurs., noon Monthly, 1st Fri., noon	West Coast International Inn Captain Bartlett Inn
ASPLS	Anchorage Fairbanks Mat-Su Valley	Monthly, 3rd, Tues., noon Monthly, 4th Tues., noon Monthly, last Wed., noon	Executive Cafeteria Federal Building Ethel's Sunset Inn Windbreak Cafe; George Strother, 745-9810
ITE	Anchorage	Monthly, 4th Thurs., noon	Sourdough Mining Company
IRWA	Sourdough Ch. 49 Arctic Trails Ch. 71 Totem Ch. 71	Monthly, 3rd Thurs., noon** Monthly, 2nd Thurs., noon# Monthly, 1st Wed., noon	West Coast Internat'l Inn **except July & Dec. Last Frontier Club #except December Mike's Place, Douglas
ICBO	Northern Chapter	Monthly, 1st Wed., noon	Zach's, Sophie Station
AWRA	Northern Region	Monthly, 3rd Wed., noon Brown Bag Lunch	Room 531 Duckering Bldg., University of Alaska Fairbanks, Larry Hinzman, 474-7331

Sielbach brings a global perspective to FHWA

Drew Seilbach's travels finally brought him North.

Sielbach, Division Bridge Engineer/Research Engineer with the Federal Highway Administration (FHWA), was transferred to Alaska about a year ago after having spent 8 years with the organization.

Sielbach was born in Helena, Montana and moved to Billings, Montana six years later. He spent twelve years there and graduated from Billings West High school in June of 1979.



After high school, Sielbach attended Montana State University in Bozeman, Montana where he received a bachelor's degree in Construction Engineering Technology in 1983. Two years as a building contractor and office field engineer in Mt. Crested Butte, Colorado followed graduation. After this, he decided he wanted to try something just a little bit different.

Sielbach's search for adventure led him and his wife, Susan to the steps of the Peace Corps. They joined up and were sent to Gabon, West Africa where he spent eight months working with the local people building schools while Susan taught English as a second language.

Sielbach looks back on his experience in the Peace Corps as a positive one. It has given him a broader perspective on where the U.S. is in comparison to other countries in the areas of construction and transportation, he says.

"It also makes you more appreciative of what we have here in the U.S." he added.

After the Peace Corps, Sielbach headed back to school at Montana State University where he received his second degree, in Civil Engineering. He was hired by the FHWA shortly after his graduation.

In his 8 years with the FHWA, Sielbach has had the opportunity to travel the United States. He has been assigned to offices in Minnesota, Virginia (outside D.C.), New York, Missouri and now Alaska. While with the FHWA, he attended the University of Missouri-Rolla where he received his third degree, this time in Geotechnical engineering.

Sielbach says that while growing up in Montana, he always had the desire to come to Alaska, and was thus very pleased when he was selected for his current position in Juneau. The family moved to Juneau in late December of 1994 and, unlike many people who often fear the reputedly gray Southeast Alaska winters, found the transition fairly pleasant.

"Moving in the winter was great," Sielbach said, "We were used to cold winters with lots of snow, and that winter in Juneau just happened to be a cold and snowy one." Consequently, he says, they felt right at home.

As an employee with the FHWA, Sielbach's main focus is to work with the state on continuing to improve the quality of the state's roads, bridges and marine highway system, while providing oversight of the Federal Aid Programs. Sielbach's job covers a wide range or areas including structures, research, technology transfer, LTAP, value engineering, metrication and emergency relief. Because of this, he says, the work is very challenging and helps to broaden his engineering background.

Sielbach's experience in Alaska thus far has been unique in many ways. He says that the Federal Aid program in Alaska is in many ways different from the other states, and as such has been a challenge to understand. As an engineer, he also says it is interesting to work on some of the challenges faced in the state due to its climate, geology, large land area, and relatively small population.

Despite his many responsibilities to the FHWA, Sielbach makes time for recreation with his wife and their three children, Collin, 5, Rachel, 3, and Kyle, 1. In their year living in Juneau, the family has done quite a few hikes in the area, at least the ones that are appropriate for the kids, he says.

They have also had a chance to wet their hooks, and their appetites, in the waters around Juneau. They haven't caught the big one yet, but have hauled in some 10-15 pound halibut and a couple of silvers, and have even tried their hands at crabbing, Sielbach says. He hopes to get more fishing time in the future.

Sielbach says that he's not sure exactly how long the family will be in Juneau, but he would like to stay for a while.

"We are enjoying Juneau," he said. "There are so many things that I like doing here."

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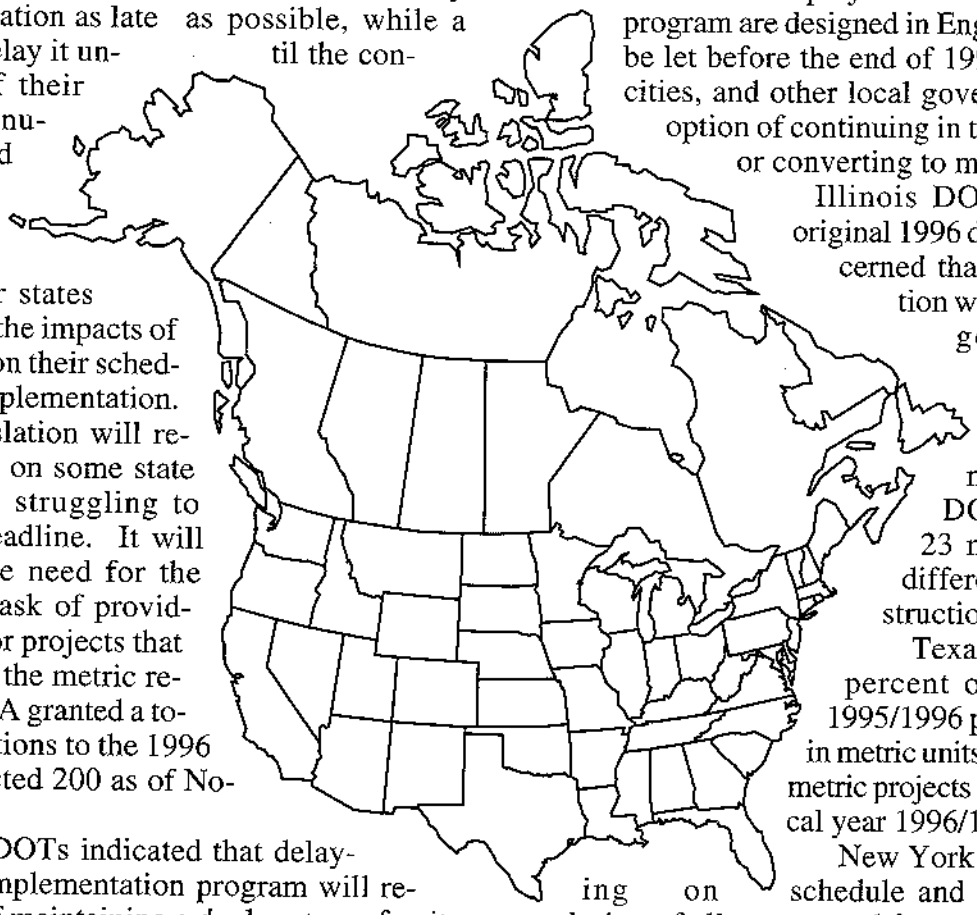
Postponement aside, metrication forges ahead

Hold on to your yardstick

by Dr. Sherif Morcos, P.E.

The National Highway System Designation Act (Senate Bill 440), signed by President Clinton in November 1995, postponed the mandatory metric requirement for federal-aid projects until Sept. 30, 2000. This mixed message has state DOTs skeptical about the government's commitment to the metric system.

Preliminary results of a survey conducted by AASHTO in December 1995 indicated that the majority of the state DOTs will continue their metric conversion and implementation efforts as originally planned, without delays. A few state DOTs will delay metric implementation as late as possible, while a few others will delay it until the conversion of all of their publications, manuals, standards, and computer programs are completed and published. Other states are still assessing the impacts of the new deadline on their schedules for metric implementation.



The new legislation will relieve the pressure on some state DOTs who were struggling to meet the 1996 deadline. It will also eliminate the need for the time consuming task of providing justification for projects that need exception to the metric requirements. FHWA granted a total of 3,000 exceptions to the 1996 deadline and rejected 200 as of November 1995.

Several state DOTs indicated that delaying their metric implementation program will result in high cost of maintaining a dual system of units for a longer transition period. They are also concerned that some contractors, manufacturers, and suppliers will get the impression that the metric system will never be implemented, and they will be reluctant to provide metric products, services, or convert their operations to metric. The following are the metric implementation plans of some of the state DOTs.

PennDOT metric conversion program, which is one of the largest in the nation, is progressing on schedule. It involves a comprehensive effort to update all publications, manuals, computer programs, and procedures in order to include current enhanced national specifications, such as Load and Resistance Factor Design (LRFD) for bridges, and new products, such as the F-shaped barrier. In response to the new bill, PennDOT will begin metric implementation on Jan. 1, 1997.

Caltrans will have about 90% of the projects on the state highway system in metric units by the end of 1996. All projects in the seismic retrofit program are designed in English units and will be let before the end of 1996. The counties, cities, and other local governments have the option of continuing in the English system or converting to metric.

Illinois DOT will meet the original 1996 deadline but is concerned that the new legislation will encourage local governments to pressure the state for delays in metric implementation. Illinois DOT currently has 23 metric projects in different phases of construction.

Texas DOT has about 7 percent of its fiscal year 1995/1996 projects developed in metric units. About 15 percent metric projects are planned for fiscal year 1996/1997.

New York DOT is progressing on schedule and will continue the design of all current and future projects in metric units. Currently New York DOT has 350 metric projects in all phases of design. The first metric project was let in the fall of 1995.

Florida DOT has several hundred metric projects at different phases. Currently Florida DOT is assessing the benefits and costs of metric implementation since there will be a high cost to convert the current

metric projects back to English units. There is also a significant cost to continue toward full metric implementation.

West Virginia DOT conversion effort is more than 95% complete with full metric implementation scheduled by July 1, 1996. WVDOT feels that it is too far along in transition to modify its current schedule.

North Dakota DOT will delay its metric conversion, training, and implementation for three to four years, in response to the new 2000 deadline.

South Dakota DOT will delay its metric program schedule and will begin metric implementation to meet the new 2000 deadline.

AASHTO and FHWA are encouraging the state DOTs to complete their conversion efforts without any delays and begin metric implementation as soon as possible.

Delaying the metric requirements unit the year 2000 will allow AASHTO and FHWA more time to convert the remainder of their manuals, publications, and computer programs to metric units. It will also allow them more time to take the lead and establish national standard hard metric dimensions for several items and products that are currently soft converted. FHWA indicated that all of its future publications will be in metric units.

What will happen when we come closer to the year 2000? Will the metric mandate be enforced or will it be postponed again and again, until it goes away? It sounds a lot like the same song we played in the '70s!

Adapted with permission from the HDR Newsletter "Bridgeline," *February, 1996.*

North Carolina ahead of schedule

North Carolina DOT has been fully metric in its preconstruction activities since January 1995. This includes surveys, photogrammetry, planning/environmental documents, in-house plan preparation and consultant prepared plans. The first metric contract was let in October 1994 and construction is complete. In calendar 1995, 20 metric projects were awarded to contract. During 1996, 93 projects will be awarded with metric plans. In September 1995, the largest contract in NCDOT history was awarded with metric plans. The low bid was $119 million, well below the $150 million in-house engineer's estimate. The project includes a multi-lane bridge, 3.0 km in length, over a river shipping channel with semi-directional and diamond interchanges adjacent to the main bridge.

A lesson from the past

Lessons can be learned from previous U.S. experiences. The first serious attempt to convert to metric in this nation was made in the mid 1970's. The Ohio Department of Transportation (ODOT) was awarded a FHWA research contract to identify various problems which were likely to arise. This study was very detailed and covered a large number of topics including general public awareness.

ODOT recognized that motorists would face certain problems in trying to convert to the metric system. To study public response, 33 destination signs were erected with distance measurements in both miles and kilometers. The study site consisted of two rest areas on the section of I-75 adjacent to the extensive dual-unit signing system. A control site was selected as two rest areas on I-71.

ODOT was concerned with two aspects of metric signs and public awareness: (1) the change over time in public awareness, acceptance, and general understanding of the metric system, and (2) the effect of a dual-unit signing system. The study was designed to determine such information using a before vs. after, study vs. control design.

The study utilized motorists' responses to 2,000 questionnaires administered in September, 1973 ("before" survey), 1,440 questionnaires administered in April, 1974 (first "after" survey), and 1,570 questionnaires administered in August, 1974 (second "after" survey). Analysis of this data led to the following findings:

· Approximately 86 percent of drivers were aware that Congress was considering a change to the metric system. This percentage decreased slightly overtime.

· The percentage of drivers who favored changing to the metric system decreased over time. For the second survey, drivers were about evenly divided between pro and con.

·There was a definite relationship between public awareness and acceptance of the metric system. As drivers became aware of the system, they accepted it more readily.

·Between 75 and 80 percent of drivers understood the basic distance relationship (miles vs. kilometers) and weight relationship (ounce vs. gram). These proportions were relatively unaffected by time.

·A majority of the motorists interviewed were able to make the proper distance conversion from miles to kilometers.

·Approximately 77 percent of the highway users interviewed felt that dual-unit destination signing was helpful in making the transition to the metric system.

Excerpted from "Citizen Concerns and Public Awareness: Metrication Examples" *by Daniel S. Turner, Jay K. Lindly and Rodney N. Chester.*

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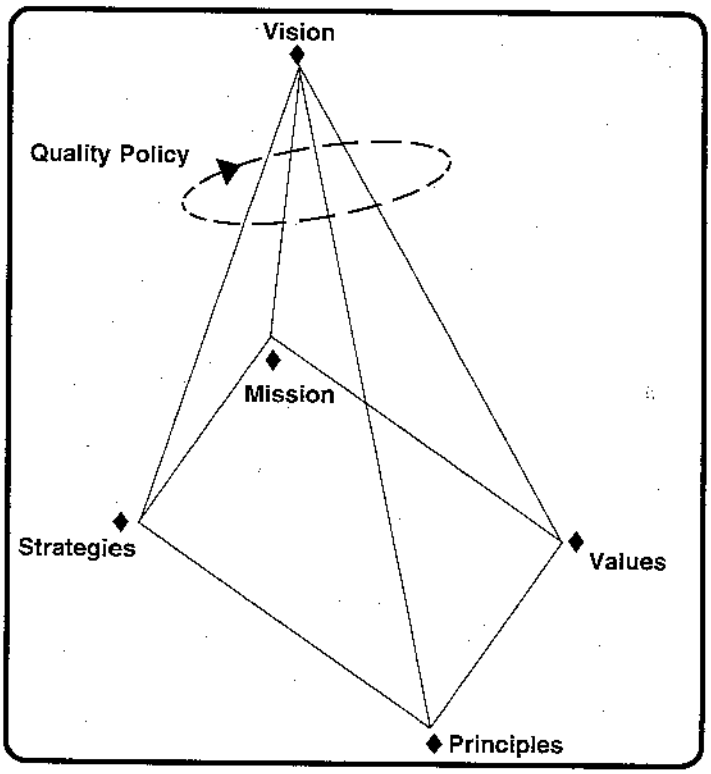
Careful planning essential to quality

This is a continuation of the article featured in the previous issue.

Terms like values, success, principles, objectives, measurements and goals come up with frequency in discussions of Continuous Quality Improvement, regardless of which "center of profound knowledge" is speaking. Although most individuals and organizations have given some thought to these terms and how they interrelate, it is essential that those aspiring to a quality environment be more explicit. Only then can all participating members of organizations or teams appreciate the full context in which continuous quality improvement is operating.

The diagram below is one graphical description of a quality organization.



For continuous quality improvement to take root and flourish, each undertaking organization needs to give thought and word to the terms shown in the diagram:

Vision What we want to be: "One of the top bridge design firms in America..."

Mission What we do: "Maintain highways open to traffic at all times..."

Values What we believe in: "Expect the highest levels of ethics, integrity, competence, honesty, fairness, etc..."

Principles What guides our actions: Quality first, focus on prevention, manage by facts, mutual respect, etc..."

Strategies How do we get there: "Concentrate on critical success factors, train employees, establish quality improvement teams, invest in technology, encourage publication, etc..."

Quality Policy What quality means to us: "Leadership in our industry can be achieved only through quality. Quality means commitment to the full satisfaction of every internal and external customer. We continually improve management and technology to meet customer requirements the first time, every time, etc..."

At first blush, these attributes of a quality system seem simple and any of the support firms listed in the quality network section could supply similar examples of the initializing concepts for the establishment of a quality driven organization. However, in order for continuous quality improvement to really take root, it is essential that the organization's top level of management spend time discussing, training, testing, and rewording these tenets to assure a good fit and comfort to all the managers who will be expected to follow them. Commitment to continuous quality improvement begins with this important step. It cannot be effectively provided by an outsider consultant alone, although a consultant can help facilitate the process.

As one studies the quality landscape, it becomes obvious that the top down management approach is essential in authorizing and designing the organizations quality journey and establishing a clear and credible reality that quality policy will be followed by all. It is

also true that for the equally essential concept of employee empowerment to succeed, people at all levels must be provided the appropriate continuous quality improvement tools, the training to use them, and a management response system to effectively inform and enable decision-making for change.

To restructure an organization to a quality environment, the necessary training includes:

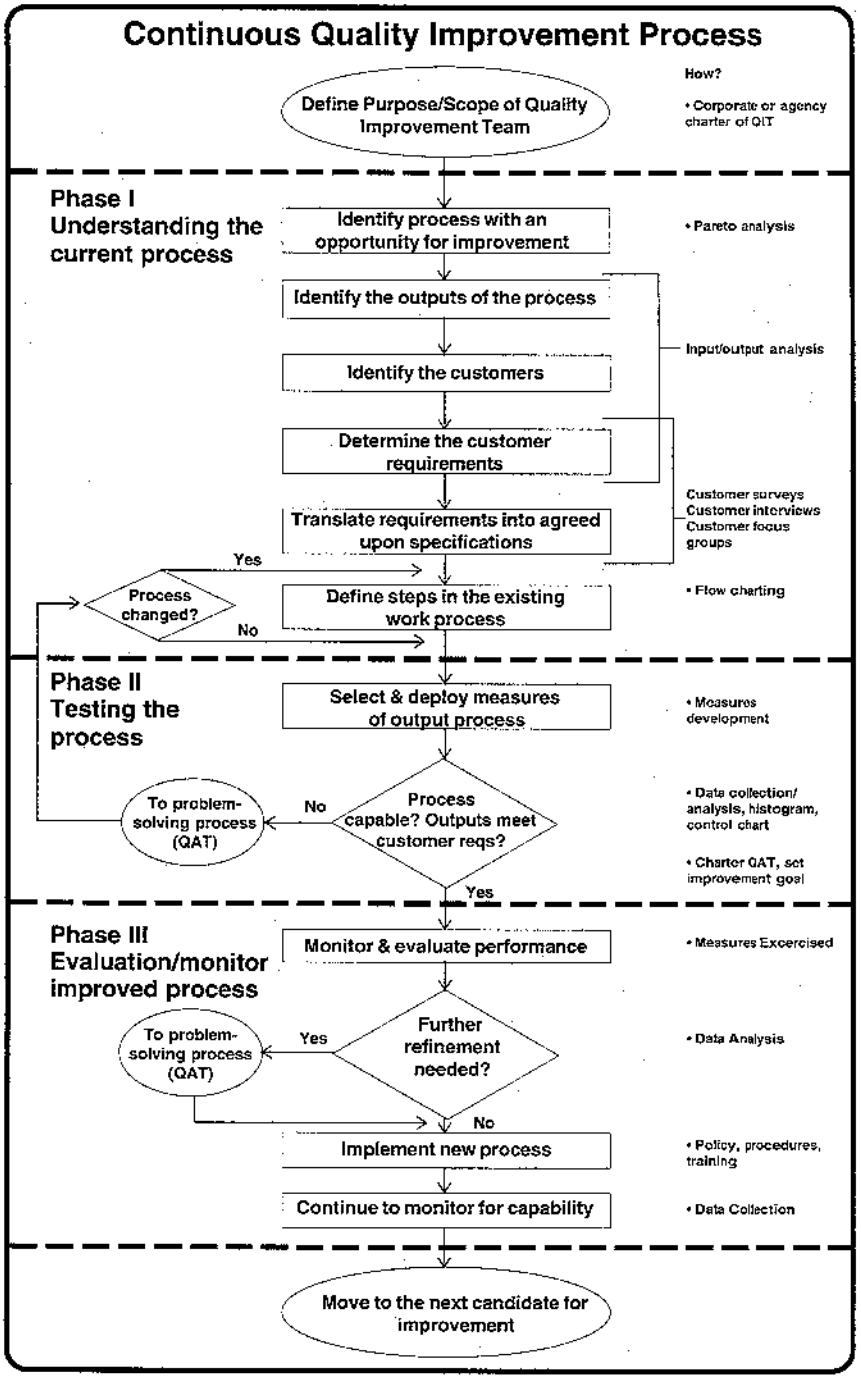
Leader/Facilitator Training Training of individuals who will be able to conduct the many group meetings effectively to accomplish the meeting objectives. Quality improvement means more meetings - they must be effective. That means issuing meeting agendas, timekeeping, recording, resolving conflicts, critiquing, using proper tools, etc.

Meeting Tools Nominal group techniques, Parteo charts, fishbone diagrams, flowcharting, input-output analysis, control charts, histograms, scatter diagrams, multivoting, force field analysis, etc.

Improvement Teams Quality Improvement Teams (QIT), chartered to assess the capability of systems to satisfy customer requirements and to receive and assure implementation of problem solutions created by Quality Action Teams. Quality Action Teams (QAT), sometimes called Corrective Action Teams, chartered by QITs to engage in problem solving when the QIT finds a system "incapable."

The complete description of all of the terms related to the continuous quality improvement process is beyond the scope of this guide, but the flow chart below may help put some of the elements of the process into perspective. The chart is keyed to specific improvement process tools to be employed.

Excerpted and abridged from "Quality Improvement Resource Guide," *Federal Highway Administration publication No. FHWA-SA-94-002, October 1993.*



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____ **Bonded Concrete Overlay (BCO) Project Selection, Design, and Construction**, ID-1458, TX-95-920-6F, Research Report 920-6F, Center for Transportation Research, Texas Department of Transportation, November 1994, 89pp.

____ **Design Guidelines to Enhance Pedestrian and Transit Interaction**, ID-1467, TX-94/1975-1, Research Report 1975-1, Texas Transportation Institute, Texas Department of Transportation, November 1994, 62pp.

____ **Detailing for Structural Concrete**, ID-1460, FHWA/TX-93+1127-3F, Research Report 1127-3F, Center for Transportation Research, Texas Department of Transportation, May 1993, 316pp.

____ **Development of a Bonded Concrete Overlay Computer-Aided Design System**, ID-1468, TX-95-2911-1, Research Report 2911-1, Center for Transportation Research, Texas Department of Transportation, January 1995, 114pp.

____ **ET-2000 Extruder Guardrail End-Terminal: Construction Report**, ID-1464, Experimental Features Project No. 93-06, Oregon Department of Transportation, September 1994, 26pp.

____ **Examples of Statewide Transportation Planning Practices**, ID-1454, FHWA-PD-95-018, USDOT/FHWA, January 1995, 150pp.

____ **Factors Affecting the Design Thickness of Bridge Slabs: Results of Static and Fatigue Test**, ID-1469, FHWA/TX-95-1305-2, Research Report 1305-2, Center for Transportation Research, Texas Department of Transportation, December 1994, 52pp.

____ **Field Performance of Maintenance Treatments Constructed with Reclaimed Asphalt Pavement (RAP)**, ID-1453, FHWA/TX-95/187-24, Research Report 187-24, Texas Transportation Institute, Texas Department of Transportation, November 1994, 68pp.

____ **A Guidebook for Residential Traffic Management: Final Report**, ID-1470, Washington State Department of Transportation, December 1994, 82pp. plus appendices.

____ **Ground Penetrating Radar Applications on Roads and Highways**, ID-1466, TX-95/1923-2F, Research Report 1923-2F, Texas Transportation Institute, Texas Department of Transportation, November 1994, 52pp.

____ **IH 35/Milo Road (Loop 20) Interchange Analysis—Laredo, Texas**, ID-1457, TX-94/2904-1F, Research Report 2904-1F, Texas Transportation Institute, Texas Department of Transportation, November 1994, 52pp.

____ **Implementation Manual for the Use of Bonding Materials for Piezoelectric TrafficMonitoring Sensors**, ID-1462, TX-95+2039-2F, Research Report 2039-2F, Center for Transportation Research, Texas Department of Transportation, November 1994, 40pp.

____ **Inductance Loop Detector Lead Length**, ID-1444, FHWA/TX-95/1392-1, Research Report 1392-1, Texas Transportation Institute, Texas Department of Transportation, September 1994, 56pp.

____ **A Method of Risk Analysis of the Transportation of Hazardous Materials by Road and Rail - Project Summary**, ID-1448, VTI rapport Nr. 387:1A, Väg- och transportforskningsinstitutet, 1994, 55pp.

____ **Mitigating the Effects of Urban Highway Construction**, ID-1446, FHWA/TX-95+1227-1, Research Report 1227-1, Center for Transportation Research, Texas Department of Transportation, January 1993, 148pp.

____ **Mobile Source Emission Impacts of High Occupancy Vehicle Facilities**, ID-1443, FHWA/TX-94/1353-2, Research Report 1353-2, Texas Transportation Institute, Texas Department of Transportation, November 1994, 100pp.

____ **Motorist Understanding of Traffic Control Devices: Study Results and Recommendations**, ID-1465, FHWA/TX-95/1261-4, Research Report 1261-4, Texas Transportation Institute, Texas Department of Transportation, March 1995, 258pp.

____ **Network-Level Deflection Data Collection for Rigid Pavements**, ID-1440, TS-94-1908-3, Research Report 1908-3, Center for Transportation Research, Texas Department of Transportation, July 1994, 57pp.

____ **Optimal Detector Locations For HOV Lane Operations**, ID-1451, FHWA/TX-95/1392-7, Research Report 1392-7, Texas Transportation Institute, Texas Department of Transportation, December 1994, 24pp.

____ **Pollutant Emissions from Passenger Cars: Influence of Cold Start, Temperature and Ambient Humidity**, ID-1441, Nr. 400A, VTI rapport, Väg- och transportforskningsinstitutet, 1994, 42pp.

____ **ProScan System Evaluation**, ID-1445, FHWA/TX-95/1378-1, Research Report 1378-1, Texas Transportation Institute, Texas Department of Transportation, December 1994, 68pp.

____ **Prov med CMA/saltblanding**, ID-1449, VTI särtryck Nr. 240, Föredrag vid Norske Vintertransportdager, Røros, 7-8 mars 1995, 1995, 14pp.

____ **Ramp Adaptive Metering Bottleneck Optimization (RAMBO) User's Manual**, ID-1463, FHWA/TX-94/1232-31, Research Report 1232-31, Texas Transportation Institute, Texas Department of Transportation, November 1994, 65pp.

____ **Speed Measurement with Inductance Loop Speed Traps**, ID-1447, FHWA/TX-95/1392-8, Research Report 1392-8, Texas Transportation Institute, Texas Department of Transportation, August 1994, 78pp.

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____ **Arc Welding**, ID-307, 50 min., Michigan T2.
____ **Asphalt-PASER: Pavement Surface Evaluation and Rating**, ID-311, 46 min., Michigan T2.
____ **Asphalt Paving Inspection**, ID-316, 1 hr., 1996.
____ **Asphalt Roadway Rehabilitation**, ID-314, 6 min., Federal Highway Administration, 1996.
____ **Chip Seal Application**, ID-313, 40 min., Federal Highway Administration, 1996.
____ **Concrete Testing**, ID-309, 39 min., Michigan T2.
____ **Gas Welding and Metal Identification**, ID-308, 87 min., Michigan T2.
____ **General Welding Safety and Tank Repair**, ID-312, 52 min., Michigan T2.
____ **Good Highway Winter Maintenance/Risk Management**, ID-306, 8:20 min., The Salt Institute, June 1995.
____ **Problems with Gravel Roads**, ID-317, 55 min., Federal Highway Administration, 1996.
____ **The Road and the Environment**, ID-319, 14 min., USDA Forest Service, Federal Highway Administration, 1995.
____ **Sample Aggregates**, ID-310, 26 min., Michigan T2.
____ **Sign Maintenance and Installation**, ID-315, 27 min., Federal Highway Administration, 1996.
____ **The Snowfighters**, ID-305, 21 min., The Salt Institute, 1995.
____ **Transitioning to Metric**, ID-318, 4½ hrs., American Public Works Association, October 18, 1995.

Additional Publications Available for Loan

____ **Research for Mobility**, ID-1450, Swedish Road and Transport Research Institute, May 1995, 15pp.

____ **Strength Continuity of Deteriorated Continuous Slab R.C. Bridges**, ID-1459, FHWA/OH-94/010, Report No. UC-CII-94/01, The University of Cincinnati, Ohio Department of Transportation, February 1994, 133pp.

____ **A Study of Selected Warning Devices for Reducing Truck Speeds**, ID-1442, FHWA/TX-95/1232-28, Research Report 1232-28, Texas Transportation Institute, Texas Department of Transportation, November 1994, 164pp.

____ **Texas Highway Cost Allocation Analysis and Estimates: Final Report**, 1993-1995, ID-1461, TX-95+1919-3F/1910-4F, Research Report 1919-3F/1910-4F, Center for Transportation Research, Texas Transportation Institute, Texas Department of Transportation, November 1994, 64pp.

____ **Traffic Forecasting Requirements by Project Type**, ID-1456, FHWA/TX-95-1235-8, Research Report 1235-8, Texas Transportation Institute, Texas Department of Transportation, August 1994, 100pp.

____ **Travel Forecasting Guidelines**, ID-1455, FHWA/TX-95/1235-14, Research Report 1235-14, Texas Transportation Institute, Texas Department of Transportation, October 1994, 312pp.

____ **Urban Travel Demand Modeling Data**, ID-1452, FHWA/TX-95/1235-7, Research Report 1235-7, Texas Transportation Institute, Texas Department of Transportation, November 1994, 122pp.

____ **Construction of Rehabilitation Test Sections on US 59 in the Lufkin District**, ID-1476, TX-95+987-3, Research Report 987-3, Center for Transportation Research, Texas Department of Transportation, August 1994, 83pp.

____ **Continuing Project on Legal Problems Arising Out of Highway Programs**, ID-1481, Legal Research Digest, April 1992, Number 24, NCHRP, Transportation Research Board, National Research Council, 8pp.

____ **Elastomeric Bearings: Background Information and Field Study**, ID-1479, FHWA/TX-95+1304-1, Research Report 1304-1, Center for Transportation Research, Texas Department of Transportation, June 1994, 104pp.

____ **Evaluation of Failure in Bridge Expansion Joint Rails**, ID-1478, FHWA/TX-95+1309-1F, Research Report 1309-1F, Center for Transportation Research, Texas Department of Transportation, October 1994, 48pp.

____ **Explaining Environmental Risk**, ID-1472, United States Environmental Protection Agency, Office of Toxic Substances, TSCA Assistance Office, November 1986, 26pp.

____ **Feasibility of Utilizing Shredded Tires In Roadside Ditches**, ID-1475, FHWA/LA-94/286, Louisiana Transportation Research Center, Louisiana Department of Transportation and Development, June 1994, 37pp.

____ **A Guide for Local Agency Pavements Managers**, ID-1477, The Northwest Technology Transfer Center, Washington State Department of Transportation, December 1994, 180pp.

____ **Improved Communication of a Left Exit Lane Drop Using Pavement Markings**, ID-1474, FHWA/TX-94/1232-27, Research Report 1232-27, Texas Transportation Institute, Texas Department of Transportation, September 1994, 62pp.

____ **Inductive Loop Tester—ILT II, Summary Report (TE-26)**, ID-1473, FHWA-SA-94-077, Office of Technology Applications, FHWA, September 1994, 17pp.

____ **SUPERPAVE: Performance Graded Asphalt, Binder Specifications, and Testing**, ID-1480, SUPERPAVE Series No. 1 (SP-1), Asphalt Institute, 69pp.

____ **The Layman's Guide to the Toxic Substances Control Act**, ID-1471, EPA 560/1-87-011, United States Environmental Protection Agency, Office of Toxic Substances, June 1987, 14pp.

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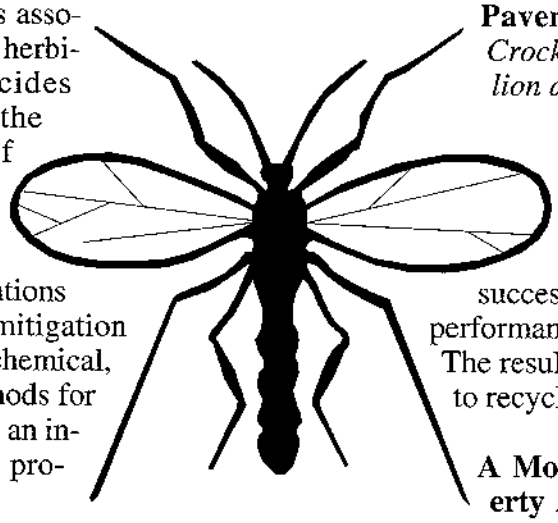
Draft Environmental Impact Statement: Roadside Pest Management Program Vol. 1,2 & 3, TX-94/ 1933-2, *Danise S. Hauser and Wayne G. McCully.*



The environmental risks associated with the use of seven herbicides and three insecticides comprising a portion of the Texas Department of Transportation's roadside pest management program were assessed. This document contains recommendations including guidelines and mitigation measures for mechanical, chemical, cultural and biological methods for TxDOT's use in developing an integrated pest management program.

Visual Prioritization Process - User's Manual, FHWA-FLP-93-007, *Lola Mason, Joanne Gallaher and Tom McGovern.*

The Visual Prioritization Process (VPP) was developed as a tool to analyze and inventory visual impacts and mitigation in connection with roadway improvement projects. This study refines the process to accommodate conditions relating to distances, angles, construction and rankings within the models. The User's manual is intended for use by all design disciplines including engineers, landscape architects and planners,

Bridge Overstress Criteria, FHWA-RD-92-082, *M. Ghosn, C.G. Schilling, F. Moses and G. Runco.*

This report presents a reliability-based procedure to determine the optimum allowable loads on highway bridges considering both static and dynamic effects. A truck weight (bridge) formula was developed to provide acceptable levels of safety for bridges designed according to the 15th edition of the AASHTO specifications. Using the safety index as a measure of safety, the truck weight formula was developed to produce a safety index value of 2.5

Cathodic Protection Field Trials on Prestressed Concrete Components, FHWA-RD-95-032, *J.E. Bennett and T.J. Schue.*

This is the interim report in a study to demonstrate the feasibility of using cathodic protection (CP) on concrete bridge structures containing prestressed steel.

Recycling Crumb Rubber Modified Asphalt Pavements, FHWA-TX-95-1333-1F, *W.W. Crockford, D. Makunike, R.R. Davison, T. Scullion and T.C. Billiter.*

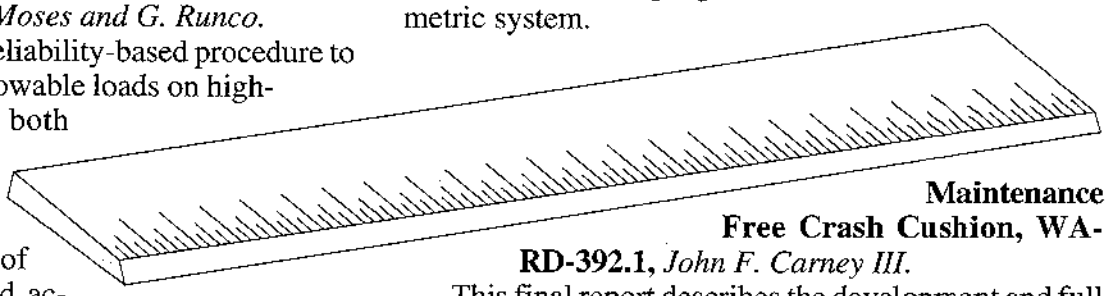
There has been concern that the legislative mandate to use waste rubber in paving applications will result in a severe environmental problem when it becomes necessary to recycle these pavements. If successful recycling is possible, the long term performance of these pavements becomes a concern. The results of this study indicate that it is possible to recycle this material.

A Model for Estimating the Value of Property Access Rights, FHWA/TX-95-1325-1F, *H. Westerfield, A.V. Gallego, J. Jarrett, R.B. Machemehl and R. Harrison.*

Public highway agency actions limiting or denying individual property owner rights of accessing public highways is a common occurrence. This study is an effort to examine access rights from a legal and econometric point of view, and to develop value estimation procedures.

Metric for Me, *Robert W. Shoemaker.*

This book contains metric information for everyday use. It contains exercises, problems and estimations on metric conversions. This guide is written in clear, understandable language and offers the basics of the metric system.



Maintenance Free Crash Cushion, WA-RD-392.1, *John F. Carney III.*

This final report describes the development and full scale crash testing of a reusable crash cushion which dissipates kinetic energy through the lateral deformation of a row of nine high molecular weight/ high density polyethylene (HMW/HDPE) cylinders.

Corrosion Effects of Cement Stabilized Backfill on Galvanized Steel Earth Reinforcements, FHWA/TX-95/1359-1F, *Derek V. Morris and Branko N. Popov.*

Cement stabilization of backfill has been used for some time in mechanically stabilized earth type retain-

ing walls. However, there has been no data on the corrosion life of galvanized steel reinforcement in this environment, which is intermediate in pH between normal soil and pure cement. This report offers some data on this possible corrosion problem.

Texas Department of Transportation Traffic Forecasting Practices, FHWA/TX-95/1235-5, *George B. Dresser, Robert W. Stokes and Montie Wade.*

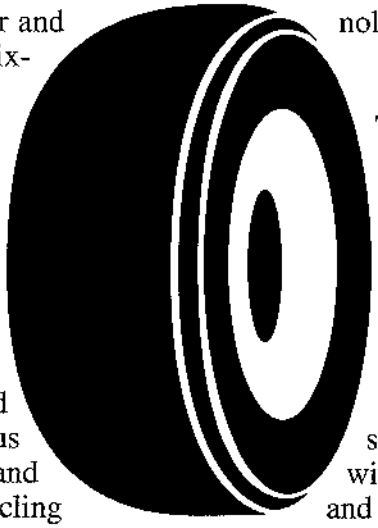
This report presents the results of a series of interviews conducted from 1989 to 1991 with district, division and administrative staff of the Texas Department of Transportation (TxDOT). The purpose of these interviews was to obtain information on TxDOT transportation planning practices, and to obtain opinions and perceptions about how well these practices were meeting the various planning needs of the department.

Effect of Highway Standards on Safety, NCHRP Report 374, *H.W. McGee, W.E. Hughes and K. Daily.*

The objectives of this research were to assess the safety effects of highway design parameters for roadway cross section, alignment, and roadside and to synthesize the findings to provide guidance on safety needs, given limited resources and other constraints.

Recycled Tire Rubber and Other Waste Materials in Asphalt Mixtures, Transportation Research Record No. 1515.

The papers in this volume deal with the various facets of recycled tire rubber and other waste materials in asphalt mixtures.



Seal Coats and Asphalt Recycling, Transportation Research Record No. 1507.

Authors of the papers in this volume describe their work related to the design, construction and performance of seal coats. The relationship between asphalt mixture design and the frictional resistance of bituminous wearing coarse mixtures is reported, and research efforts related to asphalt recycling are explained.

Flexible Pavement Construction, Transportation Research Record No. 1513.

These papers cover efforts related to flexible pavement construction quality management, work related to flexible overlays over cracked and seated portland cement concrete pavements, and a robot paver developed in Japan.

Environmental Testing and Evaluation of Stabilized Wastes, Performance of Stabilized Materials and New Aggregate Tests, Transportation Research Record No. 1486.

There are 18 papers in this volume, and they are arranged into three different groups. The first two groups of papers discuss issues related to stabilized materials, and the third group of papers relates to aggregate testing.

Unmodified and Modified Asphalt Binders, Transportation Research Record No. 1488.

The papers in the volume deal with the laboratory characterization of asphalt binders, the characteristics of modified asphalts, and the results of field trials of two antioxidants in Australia.

Traffic Operations: Highway Capacity, Transportation Research Record No. 1484.

This volume contains papers on highway capacity issues related to interrupted flow facilities and to uninterrupted flow facilities.

Concrete and Concrete Pavement Construction, Transportation Research Record No. 1478.

These papers address concrete materials technology and concrete pavement construction.

Safety Effects of Roadway Design Decisions, Transportation Research Record No. 1512.

The papers in this volume are from the 1992 TRB annual meeting and they cover topics related to the safety effects of geometric design decisions.

Pavement Design and Analysis, Transportation Research Record No. 1482.

Most of the papers in this volume were presented at the 1995 TRB annual meeting and deal with many different aspects of pavement design and analysis.

Statewide Maintenance Operations Research Report, 1995, *Minnesota Department of Transportation.*

This report documents the maintenance operations research project activity in Minnesota during the calendar year 1995.

The publications listed are available for loan from the Alaska T² Program library. To borrow any of the materials listed, contact Susan Earp at (907) 451-5320.

For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

TECHNOLOGY FOR

Alaskan Transportation

Local Technical Assistance Program (LTAP)

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